# THE AGRICULTURAL SITUATION

## AUGUST 1939

**_A Brief Summary of Economic Conditions_**

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NATURE has made an about face this season. Crops started off poorly, then improved sensationally, except for drought conditions in parts of the northeast and in an area that covers parts of the Southwest and extends into Nebraska and Kansas. In the country as a whole food for man and feed for livestock are promised in abundance. The prospective surpluses are reflected in the market places. A number of farm products are selling lower than at this time last year. But farm income holds up comparatively well as Government payments make up the deficit. * * * Economists look for improvement in the demand for farm products this summer and fall. The big question is whether the improvement will be enough to offset the heavy upply situation in major farm commodities—cotton, wheat, corn, hogs, and others. Some believe there is in the making a period of freedom from the violent fluctuations that have characterized the upply and price situation in recent years. No one looks for loss of the gains which have been won in the last 7 years.

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# Commodity Reviews

## DEMAND: Improving

The 5-point jump in the Federal Reserve index of industrial production for June (carrying it up to 97 percent of the 1923–25 averages) was the first gain since last December, in which month the index reached 104. The June gain, though due in large part to maintenance of a high rate of coal production following the April-May strike and expanded steel mill operations following the May price cuts, was helped by increased automobile output and to a further increase in cotton textiles.

Observance of a double holiday during the first week of July by many industries, together with curtailment during the month of somewhat more than seasonal proportions in automobiles and cotton print cloths, probably held the increase in industrial production for the month as a whole to considerably less than in June but, according to weekly indexes, the trend was upward.

Developments appear favorable to a continuation of gradual improvement in business and domestic demand. New auto models will soon be requiring large tonnages of steel. Textile buying has recently been sufficiently aggressive to suggest an improvement in operations by fall. Security markets shook off some of their lethargy around mid-July and the world was being treated to a period of relative political calm. These latter developments may prove transitory but while favorable they have a salutory effect on business sentiment which might, if prolonged, lead to more liberal purchasing policies, particularly since there had apparently been a considerable reduction in finished goods inventories just prior to June.

On the adverse side of the business picture are included a decline in building contracts awarded, failure of corporations thus far to raise new funds of any consequence for capital expansion later in the year, and absence of any general strengthening in commodity prices.

Though the balance appears to be on the favorable side there are still sufficient cross-currents in the situation to suggest gradual, rather than marked, improvement in business and consumer demand during the next few months.—P. H. B.

## INCOME: Increase

Cash income from farm marketings and Government payments was slightly larger in the first half of 1939 than in the like period of 1938. Income from marketings was 4 percent less but Government payments raised the total income 40 million dollars, or about 1 percent, above a year earlier.

Income from grains and vegetables the first half of this year was larger than in the same months of 1939, but income from cotton, tobacco, and fruits was smaller, so that income from all crops was not as large as in January–June last year. Smaller income from the sale of dairy products more than offset increased receipts from meat animals, chickens and eggs from January to June so that total income from livestock marketings was lower than in the same months last year.

In June income from marketings was smaller than in May and was also below that for June last year. Income from crops was 13 million dollars larger but returns from livestock and livestock products were 20 million dollars smaller.—R. C.

| Month and year | Income from marketings | Income from Government payments | Total |
|---|---|---|---|
| June: | | | |
| 1939 | $501,000,000 | $51,000,000 | $552,000,000 |
| 1938 | 514,000,000 | 45,000,000 | 559,000,000 |
| 1937 | 604,000,000 | 27,000,000 | 631,000,000 |
| January–June: | | | |
| 1939 | 2,967,000,000 | 414,000,000 | 3,381,000,000 |
| 1938 | 3,084,000,000 | 257,000,000 | 3,341,000,000 |
| 1937 | 3,499,000,000 | 330,000,000 | 3,829,000,000 |

## PRICES: Unchanged

'he index of prices received by ners for farm products remained changed from mid-June to mid-July. creases in prices of chickens and gs, *milk*, potatoes, and a few other mmodities offset declining prices : grains and fruit. Meat animals as group averaged the same as a month rlier. *Grain prices dropped 7 points* d *fruit prices 13* points from a month earlier. Cotton and cottonseed, *fruit and truck* crops, were higher than a year earlier.

The index of prices received was 89 in mid-July. This was the same as a month earlier and 6 points below the average on July 15 last year. Prices paid by farmers dropped 1 point to 120 percent of prewar or 3 points under a year ago. The buying power of farm products remained at 74, the same as a month earlier.—R. E. J.

**dex Numbers of Prices Received and Paid by Farmers**

[1910-14=100]

| ear and month | Prices received | Prices paid | Buying power of farm products[1] |
|---|---|---|---|
| 1938 | | | |
| y | 95 | 123 | 77 |
| gust | 92 | 122 | 75 |
| ptember | 95 | 121 | 79 |
| tober | 95 | 121 | 79 |
| vember | 94 | 121 | 78 |
| cember | 96 | 120 | 80 |
| 1939 | | | |
| uary | 94 | 120 | 78 |
| bruary | 92 | 120 | 77 |
| rch | 91 | 120 | 76 |
| ril | 89 | 120 | 74 |
| y | 90 | 120 | 75 |
| e | 89 | 121 | 74 |
| y | 89 | 120 | 74 |

atio of prices received to prices paid.

## EMPLOYMENT: Decrease

Farm employment, *both hired and* family labor, was less on *July 1 in* most sections of the country than a year ago. Farmers had 3,091,000 hired hands on their pay rolls on July 1 this year compared with 3,152,000 a year earlier. The number of farm family workers on July 1—9,124,000—was 197,000 less than on the same date last year. Industrial employment in manufacturing industries increased from 82 percent of the 1923–25 average on July 1, 1938, to 90 percent by May 1939 (latest data available). Farm wage rates averaged 126 percent of pre-war on July 1, or 3 points lower than a year earlier.—R. E. J.

### Prices of Farm Products

Estimates of average prices received by farmers at local farm markets based on reports to the Agricultural arketing Service. Average of reports covering the United States weighted according to relative imporce of district and States.

| Product | 5-year average, August 1909–July 1914 | July average, 1910–14 | July 1938 | June 1939 | July 1939 | Parity price, July 1939 |
|---|---|---|---|---|---|---|
| tton, pound ... cents | 12.4 | 12.7 | [2] 8.66 | 8.67 | 8.77 | 15.6 |
| orn, bushel ... do | 64.2 | 70.1 | 53.7 | 49.9 | 47.8 | 8.09 |
| Vheat, bushel ... do | 88.4 | 86.2 | 60.8 | 62.5 | 55.7 | 111.4 |
| Iay, ton ... dollars | 11.87 | 11.78 | 7.11 | 6.63 | 6.76 | 14.96 |
| Potatoes, bushel ... cents | 69.7 | 81.5 | [2] 64.0 | 61.0 | 76.4 | 85.4 |
| Oats, bushel ... do | 39.9 | 40.9 | 24.0 | 29.9 | 26.5 | 50.3 |
| Soybeans, bushel ... do | (1) | (1) | 84.8 | 83.4 | 74.7 | (1) |
| Peanuts, pound ... do | 4.8 | 5.1 | 3.5 | 3.4 | 3.4 | 6.0 |
| Beef cattle, hundredweight ... dollars | 5.21 | 5.33 | 6.74 | 6.81 | 6.66 | 6.56 |
| Hogs, hundredweight ... do | 7.22 | 7.25 | 8.56 | 5.96 | 6.26 | 9.10 |
| Chickens, pound ... cents | 11.4 | 12.2 | 15.0 | 13.4 | 13.7 | 14.4 |
| Eggs, dozen ... do | 21.5 | 16.7 | 19.9 | 14.9 | 16.5 | [3] 20.9 |
| Butterfat, pound ... do | 26.3 | 23.5 | 24.2 | 22.2 | 22.0 | [3] 30.8 |
| Wool, pound ... do | 18.3 | 17.5 | [2] 19.0 | 21.9 | 21.8 | 23.1 |
| Veal calves, hundredweight ... dollars | 6.75 | 6.74 | 7.88 | 7.98 | 8.11 | 8.50 |
| Lambs, hundredweight ... do | 5.87 | 6.09 | 6.84 | 7.49 | 7.31 | 7.40 |
| Horses, each ... do | 136.60 | 136.30 | 85.70 | 81.30 | 80.20 | 172.10 |

[1] Prices not available. [2] Revised. [3] Adjusted for seasonality.

## COTTON: Record Carry-Over

The world carry-over of American cotton at the end of July probably exceeded the record high stocks of a year earlier by about one-half million bales. Stocks of other cotton probably declined by a slightly greater amount, giving a total of a little less than last year's record high of 22,600,000 bales. This year, however, Government loan stocks were equivalent to about half of the world carry-over of all cotton and to three-quarters that of American cotton. Stocks of "free" American cotton as of the end of July this year, of about 3¼ million bales, were about half as large as a year earlier and the smallest since 1924.

The relatively small "free" stocks of American cotton, together with prospects for and more recently the inauguration of a cotton export subsidy, have been important domestic price-strengthening factors during the last 2 or 3 months. The 10-market average price of Middling ⅞-inch cotton on July 31, of nearly 9½ cents, was about ⅛ cent higher than a year earlier and from ¾ to 1⅓ cent above the average for each of the first 9 months of the 1938–39 season. Prices of American cotton in foreign markets continued unusually high in relation to foreign growths in July.

Domestic mills consumed approximately 1 million bales more American cotton during the season just ended than in the 12 months ended July 1938. It was the second largest consumption in 10 years. Exports of American cotton, on the other hand, were 2¼ million bales (42 percent) less than in the preceding season, and the smallest in 57 years. Mill consumption of American cotton abroad, however, exceeded the exports by more than 1 million bales, but was the smallest in 20 years. It is expected that the 1½ cents per pound export subsidy which became effective July 27 will increase exports and foreign consumption during the current season.

The cotton acreage in cultivation in the United States on July 1, of 24,943,000 acres, was slightly less than a year earlier and the smallest in about 4 decades. Acreage in foreign countries is also expected to be smaller.—M. R. C.

## WHEAT: Supply Smaller

Domestic wheat prices have been relatively strong compared with prices in foreign markets. For example, the price of No. 2 Hard Winter wheat at Kansas City for June 1939 averaged 6 cents lower than in June 1938 while the price of Parcels at Liverpool averaged 36 cents lower than a year earlier. Domestic prices are being supported by the loan and export-aid programs and by prospects of a smaller domestic crop than a year ago. Prices in foreign markets are depressed by prospects of the largest wheat supplies in history, and prices in Liverpool have dropped to the lowest level in modern times.

A United States wheat crop of 717 million bushels was indicated as of July 1. This is only a little larger than the domestic disappearance during the last few years. If subsidized exports should turn out to be near the 10-year (1928–37) average of 70 million bushels, a crop of this size would cause the carry-over on July 1, 1940, to be significantly reduced below that for 1939 and thereby further improve the supply situation in the United States.

World supplies are expected to be about 120 million bushels above those of 1938. An increase in the carry-over of old wheat on July 1, 1939, from the record crop of last year, is expected to more than offset a decrease in world production.—R. E. P.

## FEED GRAINS: Plentiful

This is another season of relatively low-priced feed. Despite larger numbers of animals on farms the supply of feed grains per animal has been tentatively estimated at 7 percent above the predrought average. This compares with 13 percent above in 1938. Production of feed grains may be smaller this year than last but there

is a big carry-over from last season. Total supply may be slightly in excess of last year's.

A slightly larger corn crop this year than last was indicated by the July crop report. But in number of bushels the increase is more than offset by smaller crops of oats and barley. A larger acreage of grain sorghums was indicated but the Southwest was having dry weather in early July. Clues to the probable production of supplemental feeds are found in a soybean acreage the largest on record, and a flaxseed acreage about double the plantings last year.—F. G.

## HOGS: Larger Marketings

The 20-percent increase in the 1939 spring pig crop and the prospective increase in the 1939 fall crop indicate that supplies of hogs in the 1939–40 marketing year, which begins October 1, will be materially larger than in the present marketing year.

Supplies of hogs for slaughter in the coming year probably will be about equal to the level prevailing prior to the 1934 drought. The hog situation next year will be different from that of the present year. Although feed supplies next year are expected to be about as large as those of this year, livestock numbers at the beginning of 1940 will be considerably larger than a year earlier. The smaller feed supply per animal, along with the larger hog marketings, probably will result in a hog-corn price ratio much less favorable for hog producers than it was from late 1937 to early 1939. This is expected to discourage any further marked expansion in the number of pigs raised.

After declining to the lowest level in years in mid-June, hog prices rose fairly sharply in late June and the first week in July. But prices weakened somewhat during the remainder of July. Inspected slaughter of hogs in June was considerably larger than in June last year, but it was smaller than in May. Most of the decrease in slaughter from the preceding month occurred in the last half of June.—P. R.

## CATTLE: Prices Decline

Prices of most grades of slaughter cattle declined from mid-April through early June, with the sharpest drop occurring in prices of the better grades. In late June and early July, cattle prices were about steady, but further weakness developed during the remainder of July. In mid-July prices of most kinds of slaughter cattle and of stocker and feeder cattle were lower than a year earlier, while for the first 5 months of 1939 they were higher than last year.

Marketings of grain-fed cattle have increased during recent months, and are expected to continue somewhat larger than those of last year during the remainder of 1939. Marketings of cows and heifers probably will continue smaller than a year earlier, although they will increase seasonally in the late summer and fall.

Range conditions this summer have not been so good as last summer. In early July, conditions were fairly good in the Great Plains States, but in south central and southwestern Texas and from Colorado and New Mexico westward, range feed was short. On July 1 the condition of cattle on ranges in the Western States was below that of a year earlier and below the 10-year average condition for July 1.—P. R.

## LAMBS: Crop Reduced

The 1939 lamb crop was estimated to be about 31.9 million head. This compares with the record crop of 32.2 million head in 1938. The decrease in the lamb crop from last year is almost all in Texas, where severe drought prevailed in the main sheep area for several months.

In most of the Western States the condition of the lamb crop was reported as good in early July, but lambs have not made good gains in dry areas of the western range. The proportion of lambs marketed in feeder flesh will be larger this fall than last.

As a result of smaller slaughter supplies of sheep and lambs and a stronger consumer demand for meats,

prices of new crop lambs through July have been from a dollar to 2 dollars higher than a year earlier. However, prices declined fairly sharply during July. Slaughter supplies of lambs during the remainder of the grassland marketing season, up to December 1, probably will be no larger and may be smaller than last year.—P. R.

## TRUCK CROPS: Supplies Smaller

Although market prices of truck crops in mid-July were generally lower than a month earlier, they averaged slightly higher than a year earlier. The recent declines were largely due to seasonal factors.

Owing to beneficial rains during late June in many of the eastern and midwestern intermediate and late States, prospects for most commercial truck crops have improved over those of a month ago. Yields of many of the crops now being harvested are averaging below the 1938 levels, however, and production generally is expected to be somewhat smaller than last year despite slightly expanded acreages. Decreases from a year earlier in the summer crops of snapbeans, beets, cabbage, cantaloups, carrots, eggplant, lettuce, onions, spinach, and watermelons are indicated whereas increases are in prospect for lima beans, celery, cucumbers, green peas, and green peppers.

The combined acreage planted to truck crops for canning and processing is indicated to be about 23 percent smaller in 1939 than in 1938. Although decreases are indicated for nearly every crop, there were unusually sharp decreases in snapbeans, beets, sweet corn, cucumbers for pickles, green peas, and spinach. These sharp changes in acreage may be attributed largely to the relatively low prices received for canned vegetables in the 1938–39 marketing season and to the fact that relatively large carry-over stocks are in prospect.—G. B.

## DAIRYING: Consumption Up

Prices of manufactured dairy products have increased somewhat since the low in early April. Even with this improvement butter prices are lower than a year ago and except for the worst years of the depression are the lowest for this season in about 30 years. Prices of butterfat in relation to feed grains, however, are about as high as in the period 1920–34.

Pastures improved during June and the outlook is for milk production to continue relatively high during the remainder of the summer. Total milk production on July 1 was about 2 percent above the preceding peak for the month.

Consumption of dairy products is considerably higher than a year ago. In the case of manufactured products it has been the highest on record and high in relation to production.

The net into-storage movement of manufactured dairy products has been decidedly less than in 1938. While stocks have increased since the seasonal low in early April and are high, stocks are not as much above normal as during the winter and spring.

The distribution of butter for relief has been an important factor in accounting for the increase in butter consumption. Holdings of butter by governmental agencies which totaled 111,000,000 pounds on November 1, 1938 were down to about 38,000,000 pounds on July 1. The agricultural appropriation bill for 1939–40 provided funds for disposal of surplus dairy products for relief distribution.—E. E. V.

## POULTRY, EGGS: Supplies Large

Approximately 22 percent more chicks were produced by commercial hatcheries during the first half of this year than in 1938. June is the first month this year in which production has failed to establish a new high record. Reports indicate a more rapid seasonal curtailment in hatchery operations this year than in 1938.

In contrast to the large increase in commercial hatchings, the number of young chickens per farm flock on July 1 was less than 3 percent above 1938.

tal production of eggs per farm continues slightly above last the lower production per hen more than offset by the larger ver of layers. The greatest re- l gain was about 9 percent in the North Central States. Prices nue from 2 to 3 cents per dozen r last year.

e feed-egg ratio, based on Chicago s, continues much less favorable rmers than a year earlier but is favorable than the 1928–37 ge.—R. J. F.

## UGAR: Production Down

aller crops of sugarcane for sugar ugar beets this season than last, rger crops as compared with the -37 averages, were indicated by uly crop report. Production is er in every State except Cali- a. Other features of the sugar situation are a slightly larger quantity of sugar distributed for consumption but a somewhat smaller quantity charged against the marketing quota during the first half of this year than in the first half of last year. Also wholesale prices of refined sugar during the first half of 1939 averaged slightly lower than in the first half of 1938 and the lowest for the period since 1934 although demand conditions were somewhat improved over the first half of 1938.

The acreage of sugar beets available for harvest this season is estimated to be slightly larger than in 1938, but because of reduced yield prospects production of sugar beets is expected to total only 10,162,000 short tons, or about 12 percent less than the large crop produced last season. The 1939 crop, however, is about 20 percent larger than the 1928–37 average production.

As compared with 1938, lower yields per acre are indicated for every State producing sugar beets except Michigan and California, but in both of these States the acreage is reduced slightly so that the indicated production is smaller than in 1938 for every State except California.

The acreage of sugarcane (for sugar) in both Louisiana and Florida is decreased this season from that harvested in 1938 and slightly smaller yields per acre are indicated by July 1 condition. As a consequence, production of sugarcane for sugar is indicated to total only 5,779,000 short tons this season, or about 14 percent less than the 6,720,000 short tons in 1938 but nearly 60 percent larger than the 1928–37 average of 3,609,000 short tons.

These prospects of smaller production of sugar crops indicate that the production of sugar in continental United States during the coming campaign will be reduced sharply from the record large output last season. If the yield of sugar from beets and cane in 1939 is equal to that of last year, sugar production would be about 13 percent smaller than in 1938 but the second largest on record.—G. B.

## TOBACCO: Increased Production

The 1939–40 marketing season began with the opening of the flue-cured markets in Georgia and Florida on July 25, with prices of from 11 to 19.5 cents for the bulk of sales.

The indicated production of all tobaccos, as of July 1, is 1,655 million pounds, an increase of 20 percent over the previous season. The largest increase is in flue-cured production—1,023 million pounds, an increase of 30 percent over 1938.

The total supply of flue-cured tobacco for the coming season, in spite of the indicated smaller July 1 stocks, is estimated to be 1,969 million pounds, or 229 million greater than a year earlier. Cigarette consumption was 2 percent above last year. Exports of flue-cured tobacco, which are normally about one-half of the production, were almost the same in 1938 as in 1937. Increased stocks in Great Britain, the principal importer, and increased production of flue-cured tobacco in the British Empire, causes prospects for future exports of flue-cured tobacco to appear less favorable. There is also an increase in the indicated 1939 pro-

duction of flue-cured tobacco in both China and the Japanese Empire.

July 1 indications are for a Burley crop of 351 million pounds or an increase of about 4 percent over 1938. Estimated stocks as of the opening of the marketing season are also about 4 percent above those of a year earlier, pointing to a supply of 1,036 million pounds—the largest since 1934.

The prospective crop of Maryland tobacco is smaller than that of 1938. However, an estimated increase in stocks at the beginning of the next marketing season will result in a supply only slightly below that of a year ago. Exports in the first 6 months of 1939 showed an increase of 19 percent over the same period in 1938.

A 10 percent increase in production of fire-cured and a 12 percent increase in dark air-cured tobaccos are in prospect. Foreign production of similar types and decreased consumption of manufactured tobacco products have affected these types adversely for a number of years. However, tax-paid withdrawals of manufactured tobacco for the past fiscal year were 1.4 percent above those of a year ago. The combined exports of these types for the first 9 months of the present season were 4 percent above those of the same period of the preceding season.

Cigar filler, binder, and wrapper types showed increases in production of 13, 16, and 27 percent, respectively. On the other hand, the consumption of cigars, as indicated by tax-paid withdrawals, during the past fiscal year, increased only 1.7 percent.—C. T.

## EXPORTS, IMPORTS:

The quantity of foreign trade in a number of agricultural commodities was up during the first half of 1939 from the level of the first half of 1938. Cotton, however, our leading export commodity, declined from almost 2½ million bales last year to less than 1½ million this year. Exports of leaf tobacco and fresh pears also were somewhat lower than a year ago.

The most notable increases took place in imports of raw materials for use in American industry. Hide and skin imports rose to more than twice the level of the first half of 1938 and wool imports were more than four times their last year's quantity. Sugar was the principal exception to the rule, imports declining from 1.6 million tons during the first 6 months of 1938 to 1.2 millions this year.—R. B. S.

**United States: Exports and Imports of Specified Agricultural Commodities, January–June, Average 1924–29, Annual 1938 and 1939, and June 1938 and 1939**

| Commodity | Unit | January–June | | | June | |
|---|---|---|---|---|---|---|
| | | Average 1924–29 | 1938 | 1939 | 1938 | 1939 |
| Exports: | | *Thousands* | *Thousands* | *Thousands* | *Thousands* | *Thousands* |
| Pork [1] | Lb | 237,491 | 46,752 | 62,021 | 8,456 | 14,714 |
| Lard, incl. neutral | Lb | 422,390 | 105,811 | 140,677 | 17,179 | 22,682 |
| Wheat, incl. flour | Bu | 61,717 | 62,081 | 66,406 | 9,010 | 6,797 |
| Apples, fresh [2] | Bu | 5,427 | 5,622 | 5,932 | 150 | 83 |
| Pears, fresh | Lb | 4,905 | 15,979 | 9,817 | 269 | 82 |
| Tobacco, leaf | Lb | 238,044 | 179,227 | 156,043 | 20,825 | 15,156 |
| Cotton, excl. linters (500 lb.) | Bale | 3,463 | 2,355 | 1,383 | 187 | 120 |
| Imports: [3] | | | | | | |
| Cattle | No | 152 | 247 | 491 | 18 | 27 |
| Beef, canned, incl. corned | Lb | [4] 19,519 | 38,947 | 40,996 | 8,096 | 7,879 |
| Hides and skins, agriculture | Lb | [5] 213,648 | 62,698 | 163,853 | 12,186 | 22,400 |
| Barley, malt | Lb | [6] 510 | 53,602 | 55,285 | 7,855 | 11,297 |
| Sugar, excl. beet (2,000 lb.) | Ton | 2,538 | 1,584 | 1,175 | 253 | 287 |
| Flaxseed | Bu | 11,816 | 7,383 | 10,763 | 763 | 1,802 |
| Tobacco, leaf | Lb | 39,111 | 26,782 | 30,564 | 5,029 | 5,706 |
| Wool, excl. free in bond | Lb | [6] 99,471 | 10,062 | 41,777 | 2,279 | 6,336 |

[1] Includes fresh, canned, and pickled pork; bacon, hams and shoulders, and sides.
[2] Includes barrels, baskets, and boxes in terms of bushels.
[3] General imports prior to 1938. Subsequently imports for consumption.
[4] Includes a small amount of "meats canned, other than beef."
[5] Includes reptile and fish skins.
[6] Imports for consumption.

Office of Foreign Agricultural Relations. Compiled from Monthly Summary of Foreign Commerce of the United States and official records of the Bureau of Foreign and Domestic Commerce.

# The Wheat Export Subsidy

IN THE summer of 1938 prospects indicated that exports of wheat during the 1938–39 season would not exceed 40 to 50 million bushels. This would have left a large surplus above domestic requirements, and necessitated low domestic prices relative to foreign. For these and other reasons, the United States Government inaugurated an export-subsidy program for wheat in September 1938. The Government purchased wheat in this country and sold it to exporters or foreign importers at prices which permitted them to compete with other wheats in foreign markets. With the subsidy in operation, exports in 1938–39 exceeded the 100-million-bushel goal which was announced at the beginning of the program.

THE EXPORT subsidy, by decreasing supplies of wheat in the United States, and increasing supplies in importing countries, would be expected to raise prices in the United States and lower them somewhat in foreign markets. In other words, the domestic price would be raised relative to the foreign price; or, world prices would be lower relative to domestic prices. Examination of the movement of wheat prices since the subsidy went into effect shows that this actually occurred. Whereas, under similar supply conditions wheat prices in Kansas City ordinarily are about 15 cents under prices in Liverpool, during the months in which the export subsidy was in operation, they averaged slightly higher than Liverpool prices.

There is little disagreement over the conclusion that the export subsidy was largely responsible for this change in the spread between prices in the United States and in foreign countries. Of course, the wheat loan program was in operation during the time the subsidy was in effect, and tended to support domestic prices relative to foreign; but only a part of the change in the spread can be attributed to this factor. There seems to have been a considerable difference of opinion, however, regarding how much of this change in the spread was due to a rise in the domestic price and how much to a fall in the world price. Most people seem to believe that the effects of the subsidy were mainly on the domestic price, but some have expressed the belief that the principal effect of the subsidy was to lower the world price. Light can be thrown on this question by a resort to both theoretical and statistical analysis.

IN theory, the relative effects of the subsidy on domestic and foreign prices would depend upon the way in which prices in the United States and foreign markets respond to changes in quantities marketed or made available for consumption. In more exact technical language, it depends upon the "elasticities" of domestic and export demand. The relative influence of the subsidy on domestic prices would be greater, and on foreign prices less, if the elasticity of export demand is greater than the elasticity of domestic demand. Market observers seem to be in general agreement that the domestic demand for wheat is highly inelastic. Although economic changes of recent years may have decreased the elasticity of export demand, it is still undoubtedly greater than for domestic demand. Thus, according to theory, the effects of the export subsidy would be to raise domestic prices much more than to lower prices in foreign markets.

Another way in which at least a partial answer to this question can be obtained is through a statistical analysis of the factors affecting the world price of wheat. For this purpose, the price of British parcels converted to bushels has been used to represent world prices. The price has been expressed in terms of shillings in order to avoid difficulties which arise in connection with changes in exchange rates and monetary units. Data for

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... of the annual fluctuations in wheat prices during this period of years seemed to be accounted for by changes in world supplies of wheat and in the level of wholesale commodity prices in Great Britain.

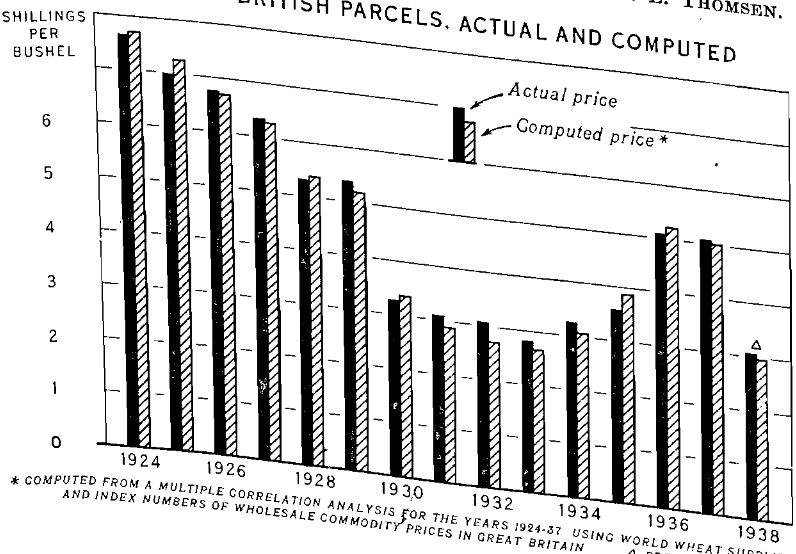
USING this analysis, we can compute an estimated price for each of the years included, based on changes in world wheat supplies and commodity prices. These estimated or computed prices may then be compared with actual prices for the respective years. Now, if we do the same thing for the year 1938, we can determine if the price of wheat in Great Britain for that year appears to be in line with what would have been expected on the basis of the situation with respect to world supplies of wheat and the general level of wholesale commodity prices.

In the accompanying chart, the computed and actual prices are shown ... analysis, and for 1938. On the basis of this test, we can discern no appreciable effect of the United States wheat-export subsidy upon world prices of wheat. To the extent that the basic statistical analysis used is valid, this confirms the conclusion arrived at on more theoretical grounds as described in the preceding paragraphs. It should be noted, however, that data are not yet available for a sufficient period of years to warrant great confidence in such a statistical analysis, because of technical difficulties which make it very desirable to have a large sample of observations.

Despite these limitations of the statistical analysis, we can feel fairly confident that the wheat-export subsidy has operated mainly to increase domestic prices rather than to lower world prices. Wheat is one of the relatively few commodities to which an export subsidy can be successfully applied.

F. L. THOMSEN.

WHEAT: PRICE OF BRITISH PARCELS, ACTUAL AND COMPUTED




* COMPUTED FROM A MULTIPLE CORRELATION ANALYSIS FOR THE YEARS 1924-37 USING WORLD WHEAT SUPPLIES AND INDEX NUMBERS OF WHOLESALE COMMODITY PRICES IN GREAT BRITAIN

Δ PRELIMINARY

A record high milk production on farms in 1938 and record marketings of milk products is reported by AMS. The increase over 1937, however, was not sufficient to offset lower prices received for dairy products, and a reduction occurred in the annual value of milk produced on farms and of milk products sold by farmers.

# :icės Received by Farmers—An Appraisal

'ATIONAL agricultural policy is determined and programs to im- nent this policy are planned more more in terms of their effect on ty income and parity prices. The putations of both income and price ty involve the extensive use ot nates of prices received by farmers products sold and prices paid by iers for commodities bought.

stimates of average prices received :armers are made each month for :ommodities, including crops, live- k, and livestock products. An- l averages are computed for these is, by giving weight to proportion- sales in different months. These ages are supplemented with crop on estimates of prices received each of the 54 remaining crops for :h annual estimates of production made.

HE PRIMARY source of infor- mation on prices received by iers is the monthly reports from general list of voluntary price rters. This list includes operators ountry mills and elevators, live- k buyers, general merchants, offi- of cooperative marketing associa- s, and farmers.

he problem of obtaining a sample of returns from these groups that will accurately indicate the agricultural price level is not entirely free of difficulty. Sufficient reports are generally received for the more important farm products to satisfy the statistical requirements for an average on a State-wide basis. It is quite difficult, however, to secure returns that are representative of the various grades and qualities of the product being sold each month or representative of the several methods of sale.

CORRESPONDENTS are requested to report an average of prices prevailing in their local markets on or about the 15th of each month such as, if multiplied by total sales by farmers at that time, would equal the total amount received from these sales. Reporters usually know current quotations on the more common grades of a product and tend to submit these quotations rather than averages of all sales. Often prices of No. 1 potatoes are submitted or "card" prices for specific grades of wheat rather than average prices for all grades being sold. This may not distort the accuracy of month-to-month changes in the estimates in any given year, but this grade selectivity does result in some upward bias. This is not desirable in view of the use of price in the determination of farm income.

Similar difficulties are encountered in obtaining returns representative of the various methods of sale in any given area. In the case of fruit, farmers may sell the product ungraded on the tree, in bulk at the packing-house door, or graded and packed after it has passed through a cooperative packing-house. Cooperatives are tending to enter more and more into the production process. With these tendencies, there has been a corresponding tendency in the local market to adopt generally a basis of quoting prices applicable to only a single method of sale. This naturally leads to a selective basis of reporting prices which does not provide representative series of price statistics suitable for the derivation of farm income data.

**A solution to these problems of selectivity requires further stratification of the sample in the areas of commercial production where they are particularly troublesome. Prices could be determined by grades and by method of sale, then weighted by the proportion of sales in each grade and the proportion of product sold in each of the several different ways. This would make available to the research worker and to the public separate series of prices received by grades and by sales *methods* to fill the need for prices on different bases. Combination of the several price strata would also**

**provide average farm product price series that would be comparable in different areas and on different products for farm income computations.**

LOCAL market prices of farm products seldom remain constant over any appreciable period. Averages of prices on or about the 15th of the month, therefore, are depended upon largely to give "serviceable" current indications of monthly changes in the agricultural price level, as a monthly enumeration of all sales would be out of the question. In consequence, these series are generally recognized as mid-month prices. Since the data are collected from a general list of reporters, all correspondents are not familiar with current prices of every product. This factor sometimes results in the failure of reported figures to keep up with changes in the market. The resultant error can only be corrected by reference to a limited amount of terminal market and shipping point information.

**This difficulty could be overcome in part for the major commodities by a careful classification of price reporters. Lags could be minimized by dividing the general list of correspondents into groups of specialized commodity buyers. Prices could then be solicited from each group only for the products which it is actively purchasing from farmers. This procedure already has been found effective in the collection of data for commodities grown only in localized areas of surplus production. Unfortunately, it is somewhat more costly to obtain coverage of all areas of production with a number of separate inquiries than with a general price questionnaire.**

THE PROBLEM of securing reliable price indications for a State in any given month involves still another difficulty. A straight average of reports from voluntary correspondents is made for each price-reporting district, of which they are generally from 6 to 9 in a given State. The district averages for most items are then weighted in proportion to census enumerations of production in each district. Actual sales, however, are required to establish a price, yet no census information on sales of specific products in areas smaller than a State are available since 1930 and then only for relatively few products. The proportion of a crop produced in different parts of the State is by no means constant. The proportion of production of a product that is sold in any given district also is likely to vary greatly among areas in the district, being greater in areas of surplus production. Seasonal differences also occur in the proportion of sales originating in a particular district.

**To meet this difficulty current estimates of sales are needed by months and by price-reporting districts. This would require a rather comprehensive monthly coverage of buyers of agricultural products to obtain timely sales data. Such inquiries should be supplemented, however, with current surveys of the movement of farm products to market by rail and truck to provide a basis adequate for a precise approximation of total sales.**

ASIDE from the problem of estimating local market prices of farm products as of a specific date, the estimation of average prices during the crop-marketing season presents another set of problems. Mailed inquiries regarding season average prices of special crops are sometimes sent to farmers at the end of a crop-marketing season. Replies to these are not altogether satisfactory when the inquiry refers solely to prices received as some farmers tend to forget early-season sales and report either on the last sales of their own products or on current prices.

**Recent experimentation with questionnaires asking quantities sold during a particular season and total dollars received for these sales has shown promising results. Through this procedure, season average prices can be obtained by dividing receipts by quantities sold and the influence of current quotations on yearly averages avoided.**

A corresponding procedure is now used to secure final returns on monthly wholesale prices of milk. In this case, the situation is complicated by the payment of different prices for milk distributed for fluid consumption from that paid for milk used for other purposes. Average monthly prices for total deliveries can readily be determined only by dividing total receipts by the quantity sold. One handicap to the more general use of this procedure is the impossibility of keeping monthly averages reasonably current. Because of this, preliminary monthly estimates of wholesale milk prices must be made before final figures are available in order to fill the demand for the data at the time mid-monthly estimates are released.

R. F. HALE.

# Six Months of Foreign Trade

BOTH EXPORTS and imports of agricultural products have been unusually low during the first 6 months of 1939. Exports have been held down by the generally depressed condition of our leading foreign markets and, to some extent also, by failure of United States commodities to meet competitive world prices. Imports have encountered a sluggish United States demand for farm products and abundant domestic supplies. During the second half of the year, however, it is anticipated that our foreign trade in farm products will be relatively larger in both directions.

Agricultural exports fell from 413 million dollars during the first half of 1938 to 268 millions during the first 6 months this year, a decline of 35 percent or 145 million dollars. Of this decline, about 35 percent, or 51 million dollars, represented the decrease in exports of unmanufactured cotton. Another 37 percent represented a fall in corn shipments from their unusually high 1938 level. Other principal items contributing to the decline were wheat and tobacco.

United States agricultural imports were valued at 520 million dollars during the first half of 1939, a rise of 9 percent over the 1938 figure. Most of the rise was due, however, to the noncompetitive commodities, chiefly cacao beans, rubber, and carpet wool. Agricultural imports of a type which supplement United States farm production rose only 4 percent, to a value of 251 million dollars for the six months. There was a decrease of 29 percent in the value of sugar imports, the largest item in this group. Imports of wool and hides and skins rose considerably.

UNITED STATES cotton exports have fallen to their lowest levels in recent history under the combined influence of low textile production in leading foreign markets, supported prices for United States cotton, relatively large foreign cotton production (much of it available in exchange for limited-use currencies or on other terms whose effect is to lower prices), and the vigorous encouragement of artificial fibers and decreased total textile consumption in the totalitarian countries. During the first half of 1939, we have exported less than 1½ million bales, as compared with almost 2½ million during the first half of 1938 and 3½ million on the average during the corresponding parts of the 6 years, 1924 to 1929. There has also been a drop in cotton imports, but these are too small in amount to materially affect the total cotton picture in the United States.

ALTHOUGH the total value of exports of grains and grain preparations has been lower than last year thus far during 1939, exports of wheat (including flour in terms of wheat) rose by about 4½ million bushels. The decline in the total value was due to a 81-million-bushel decline in corn shipments, smaller declines in oats and rye, and unusually low wheat-export prices under the subsidy. The change in corn exports was expected, since the large 1938 shipments were due principally to unusually low crops in a number of foreign producing countries. In spite of the decline, our corn exports have been higher this year than during the first half of any year from 1929 to 1938.

Tobacco exports have been 23 million pounds or 13 percent smaller during the first half of this year than a year ago. The decline has been due mainly to flue-cured, exports of which have fallen from 129 to 106 million pounds. Tobacco imports, on the other hand, have risen from 27 to 31 million pounds, due mainly to an increase of imports of cigarette leaf for blending.

THE RETURN of domestic slaughter of meat animals to more nearly normal levels this year has been reflected in some increase in exports and decline in imports of meat products. The value of exports has exceeded that of imports during the first six months, whereas the reverse was true a year ago. In addition, lard exports have been 33 percent above those of the first half of 1938.

Leading imported raw materials, expecially wool and hides, have been imported in greatly increased quantities in response to the changed outlook for industrial production in the United States. Sugar imports, however, which fall only partly in this group of commodities, have been 26 percent smaller than last year.

Trade in dairy products has been larger in both directions: 10 percent in the case of exports but less than 1 percent in the case of imports. Smaller exports of condensed and dried milk have been offset by increased exports of butter and cheese. Cheese imports have also been larger. In the case of butter, an excess of imports over exports during the first half of last year has been changed to an excess of exports.

THE PRESENT outlook is for a considerable expansion of both agricultural exports and imports during the next few months. Foreign demand is responding to the stimulus of greatly increased government-financed armament activity. United States farm exports should receive some additional impetus from the cotton subsidy program now being prepared. On the side of imports, increased domestic industrial activity will probably result in an increased demand for both domestic and foreign products.—R. B. Schwenger.

# Increasing Use of the Combine

THE INCREASE in the use of the combined harvester-thresher during the last 20 years has been exceedingly rapid and widespread. Its limited use in harvesting less than 5 percent of the wheat crop in 1920 has increased until in 1938 it was used in harvesting about 50 percent of the wheat acreage harvested for grain. During the same period the number of combines on farms in the United States increased from about 4,000 to around 100,000.

Types and sizes also have changed, the general tendency being toward smaller and lighter machines. The "baby" combine, of recent development, has been largely responsible for the rapid spread of the combine method of harvesting in the Central, Eastern, and Southern States, where wheat acreages are small compared with the large acreages of the Plains and western wheat country. The combine is used also in the harvesting of small grains other than wheat, and in

irvesting of such crops as grain ıms, soybeans, and grass seeds; still remains of primary impor- in harvesting wheat.

SULTS of a recent study based n estimates from crop corre- ents indicate that the combine sed in each of 41 States circu- l. Its use was most pronounced

The limited use of the combine in harvesting oats for grain is due probably to the desire of farmers to save the oats straw for feed and bedding. Consequently, the combine is used for harvesting oats to a greater extent in those areas where oats are plentiful than in areas where the acreage is limited. In the East

**reage of Wheat and Oats Harvested by Specified Methods, by Geographical Divisions, 1938** [1]

| Geographical division | Wheat acreage harvested with— | | | Oat acreage harvested with— | | |
|---|---|---|---|---|---|---|
| | Combine | Binder | All other methods | Combine | Binder | All other methods |
| | *Percent* | *Percent* | *Percent* | *Percent* | *Percent* | *Percent* |
| Atlantic | 8 | 90 | 2 | 5 | 88 | 7 |
| )rth Central | 30 | 69 | 1 | 14 | 84 | 2 |
| orth Central | 48 | 48 | 4 | 7 | 91 | 2 |
| .tlantic | 6 | 76 | 18 | 8 | 48 | 44 |
| uth Central | 7 | 85 | 8 | 10 | 39 | 51 |
| )uth Central | 75 | 24 | 1 | 12 | 60 | 28 |
| ıin | 50 | 44 | 6 | 11 | 81 | 8 |
| | 84 | 14 | 2 | 37 | 60 | 3 |
| States [2] | 49 | 47 | 4 | 10 | 83 | 7 |

nformation obtained relative to wheat and oat harvest in the New England States and Florida, or in California.
rage for States reporting.

the West South Central and cific Coast States where from 75 85 percent of the wheat acreage rvested for grain in 1938 was com- ıed. It is also an important means harvesting the wheat crop in the əst North Central and Mountain ıtes where about 50 percent of the 38 wheat crop was harvested with ə combine.

THE grain binder is still important harvesting wheat in some sections the country, particularly the Middle lantic, the East South Central, and uth Atlantic States, where more an 75 percent of the 1938 wheat ɔp was harvested with the binder.

LTHOUGH the combine is used in harvesting oats the grain ıder continues to be the most impor- ıt machine for harvesting this crop. ır the country as a whole, the com- ıe was used to harvest 10 percent of ə oat acreage in 1938 and the binder ıs used to harvest 83 percent.

North Central States nearly 15 percent of the oats harvested for grain was harvested with the combine. In the Middle Atlantic, West North Central, and South Atlantic States less than 9 percent of the crop was combined.

THE RESULTS of the study apply only to crops harvested in 1938. Climatic conditions, insect infestation, prevalence of disease, yields, and prices received by farmers, all affect to some extent the harvest methods used in the particular year. In 1938, for example, the use of the combine-harvester-thresher undoubtedly was curtailed in some of the Great Plains States because of serious grasshopper infestation. Grain could be cut with a binder at an earlier stage than with the combine and damage from the infestation lessened.

THE FIRST patent on a combine was granted in 1828, 3 years before the first trial of the McCormick reaper

in Virginia. But it was not until the 80's that the combine began to have practical use on farms. In 1881 there were about 20 combines in California. By 1888 the number had increased to around 500.

Although the combine first came into general use in the Pacific Coast States its use was very much restricted until the World War period. At that time combines of 10 to 16 feet in size, then considered to be small combines, were introduced in some of the more extensive subhumid wheat areas of the Great Plains and Mountain States. The use of the combine increased rapidly in the major wheat areas, but it was not until rather recently that it was used to any appreciable extent in the Corn Belt and in other humid areas. The introduction of the "baby" combine and the effective use of tractor power for the operation of the combine unit, together with increased adaptation of the combine for harvesting crops other than small grains, contributed to its increasing popularity.

THE COMBINE, all things considered, has decreased the cost of harvesting and threshing grain crops. Reduction in costs, compared with costs of older methods, have been most pronounced in areas and on farms where the straw was of little or no value. On many of these farms harvest costs have been reduced more than 25 percent by use of the combine.

The cost of harvesting an acre of grain with the combine depends upon many factors such as the size of the combine, the yield of grain, and the size and topography of the field. In the Great Plains area studies show that with effective use of combines of 12 to 14 feet in size, small grains can be harvested at a cost of $1.50 or less per acre. Costs in other areas are usually considerably in excess of this amount.

Custom rates for combining, which should reflect fairly well the relative costs of operation, show that in 1938 the custom combine rate ranged from $1.40 per acre to slightly more than $4.00 per acre in different States. The higher rates were usually in States with relatively small fields, and with grain yields and rates for hired labor above average. Here combines of small size are generally used.

THE MOST important factor contributing to the lower cost of harvesting with combines as compared with other methods, is the saving in labor. In the principal wheat areas where combines are used extensively, less than one-third as much labor is needed now to harvest an acre of wheat as was required when grain was cut with a header or binder and threshed with a stationary thresher. In many major wheat areas, formerly dependent on itinerant labor for harvest, this need has practically vanished with introduction of the combine. A relatively high degree of skill is now required of the harvest worker. In fact, the "harvest hand" of former years has been largely replaced in the major wheat areas by skilled machine operators.

There are many indications at present that the use of the combine will continue to increase, especially in humid grain-growing areas. Introduction of the small combine was made only recently and there are still many farms where it can be used effectively. The increased adaptation of the combine for harvesting crops other than small grains may result in an increase in its use. The rapid increase in the acreage of soybeans for grain already has resulted in stimulating interest in combines. The use of the combine has increased along with the use of the tractor. Its use is but one element in the general tendency toward farm mechanization. Once the power unit is mechanized, complementary machines naturally follow.

A. P. BRODELL.

# The Farmer's Workstock

AT THE beginning of this year there were 10,800,000 horses on farms, and 4,382,000 mules. The number of horses was the smallest in nearly 60 years, the number of mules the smallest in 30. The January 1 inventory showed a decrease in the number of horse colts foaled in 1938, but an increase in the number of mule colts. The number of colts being raised indicates that the numbers of horses and mules will continue to decline for several years at least.

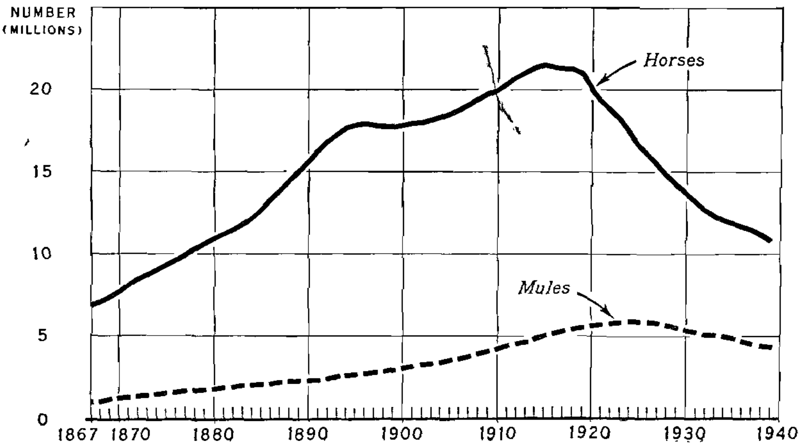
The accompanying chart shows the estimated number of horses and of mules on farms January 1 for the period 1867 to date. The number of horses increased almost without interruption from 1865 to 1915, although there was a period of a few years about the end of the last century, reflecting the effects of the depression of the nineties, when numbers declined moderately. The decrease from 1915 has been continuous. The number of mules increased steadily until 1924 and has since declined.

THE numbers of horses and of mules during the last 70 years have not been characterized by short-time cycles of increasing and decreasing numbers such as are shown by numbers of other livestock. During this period numbers have gone through a part of one cycle, being in the upward phase at the beginning and in the downward phase at the present time, the low point of which will not be reached for several years, at least.

Two principal reasons may be given for this absence of short-time cyclical movements. One is the relatively long life of horses and mules—the average age of horses is about 15 years and of mules over 20 years. The other is that horses and mules largely live out their useful lives since they are work animals and there has never been any considerable slaughter outlet through which surplus animals could be disposed of. Also the continuous expansion of farming into new areas up until the end of the second decade of the present century furnished an outlet for increasing numbers of work stock on farms.

The development of mechanical power as a substitute for animal power on farms, and the end of the period of expansion of the farm area to new lands came at about the same time, as did also the rapid decline in the nonagricultural use of work animals.

HORSES AND MULES: TOTAL NUMBER ON FARMS JANUARY 1, UNITED STATES, 1867-1939



It was necessary to adjust production of horses and mules to this new situation. The raising of colts declined precipitously but the decline in numbers of horses and mules from the peak of numbers was only gradual as there was no practicable method by which any rapid reduction could be made.

THERE has been much less variation in regional trends in horses and mules than is shown by other species of livestock. The following table shows for each region and for the United States the estimated number of horses and mules on farms in certain selected years. The years selected are those when numbers reached the peak for each region, the year when the United States total reached a peak, decennial census years 1870, 1900, 1910, 1920, and 1930, and the present year, 1939.

It is shown that for 5 of the 7 regions numbers of horses reached their peaks within the period 1914 to 1918; in the North Atlantic, about 1894; in the East South Central, in 1901. From these peaks, numbers have declined steadily in all regions, with about the same relative decline in all regions. From the peak to 1939 the United States total decreased about 50 percent. The declines in all regions from their respective peaks to 1939 ranged from 48 to 57 percent. The decline has been largest in regions that usually bought a considerable part of their work stock and smallest in regions that have produced surplus horses for sale.

The peak numbers of mules for all regions was reached within the period 1916 to 1926. There has been a wide variation among regions in the relative declines from these peaks, ranging from only 6 percent in the South Atlantic, and 9 percent in the East South Central, to 56 percent in the West North Central. The United States total is down 26 percent. Decreases have been smallest in the regions that depend largely upon purchases of mule replacements, and largest in regions that produced mules for sale. The situation in these respects is just the opposite of that shown for horses.

UNTIL 1915, when the total number of horses on farms was the largest on record, the number of horses exceeded the number of mules in all regions. In 1915, mules outnumbered horses in the East South Central region, where the number of horses had reached a peak in 1901 and where the number of mules increased rapidly from 1900 to 1915.

C. L. HARLAN.

**Horses and Mules on Farms**

[000 omitted]

| | North Atlantic | East North Central | West North Central | South Atlantic | East South Central | West South Central | Western | United States |
|---|---|---|---|---|---|---|---|---|
| *Horses* | | | | | | | | |
| Peak year | 1894<br>1,770 | 1915<br>4,722 | 1915<br>7,527 | 1915<br>1,152 | 1901<br>1,152 | 1914<br>2,530 | 1918<br>3,209 | 1915<br>21,431 |
| 1870 | 1,388 | 2,587 | 1,268 | 616 | 767 | 687 | 320 | 7,633 |
| 1900 | 1,656 | 4,001 | 5,544 | 1,039 | 1,146 | 2,294 | 2,176 | 17,856 |
| 1910 | 1,577 | 4,395 | 6,803 | 1,092 | 1,121 | 2,488 | 2,496 | 19,972 |
| 1915 | 1,562 | 4,722 | 7,527 | 1,152 | 1,090 | 2,523 | 2,855 | 21,431 |
| 1920 | 1,420 | 4,114 | 6,943 | 1,041 | 1,045 | 2,412 | 3,116 | 20,091 |
| 1930 | 898 | 2,729 | 5,200 | 612 | 593 | 1,556 | 2,154 | 13,742 |
| 1939 | 791 | 2,404 | 3,612 | 501 | 538 | 1,318 | 1,636 | 10,800 |
| *Mules* | | | | | | | | |
| Peak year | 1922<br>69 | 1916<br>323 | 1922<br>976 | 1920<br>1,082 | 1926<br>1,306 | 1926<br>2,116 | 1925<br>218 | 1925<br>5,918 |
| 1870 | 31 | 167 | 175 | 251 | 398 | 196 | 27 | 1,245 |
| 1900 | 45 | 212 | 492 | 546 | 808 | 917 | 119 | 3,139 |
| 1910 | 52 | 263 | 726 | 746 | 986 | 1,324 | 142 | 4,239 |
| 1920 | 68 | 310 | 847 | 1,082 | 1,250 | 1,905 | 189 | 5,651 |
| 1925 | 65 | 316 | 892 | 1,032 | 1,285 | 2,110 | 218 | 5,918 |
| 1930 | 61 | 266 | 686 | 1,010 | 1,265 | 1,725 | 169 | 5,382 |
| 1939 | 61 | 219 | 432 | 1,017 | 1,194 | 1,342 | 117 | 4,382 |

# REA—What It Is, How It Works

> Transfer of the Rural Electrification Administration to the Department of Agriculture is a step of the utmost significance both for the Department and for the Federal rural electrification program. It holds promise of widening the usefulness of electric service for farmers. The idea that the farmers of this country are entitled to rural electrification now has wide acceptance.
>
> In the 4 years since REA was set up electric service has been made available through efforts by Government and by the utilities, to more farm people than in the 3 decades since rural electrification had its beginnings in the United States early in the century. The resources of this Department will be thrown behind the REA program in order to further rural electrification and, with and in part through rural electrification, the other farm programs.
>
> As an administration within the Department of Agriculture, REA will continue to make loans for self-liquidating rural electrification projects designed to bring urban advantages to farm homes, to lighten the burden of farm drudgery, and to provide the farmer with new opportunities for efficient and economical production. We will take electric service to all the farms we can.
>
> —*Henry A. Wallace.*

THE Rural Electrification Administration, which became a unit of the Jnited States Department of Agriculture on July 1 in accordance with Reorganization Plan II, was set up by Executive Order on May 11, 1935, under authority of the Emergency Relief Appropriation Act of 1935. A year later it was put on a permanent basis by the Rural Electrification Act of 1936.

This Act entrusted direction of the rural electrification program to an Administrator appointed by the President by and with the advice and consent of the Senate. It fixed his term at 10 years. It gave him three main duties. These are, in the language of the Act, "to make loans in the several States and Territories for rural electrification and the furnishing of electric energy to persons in rural areas who are not receiving central station service, as hereinafter provided; to make, or cause to be made, studies, investigations and reports concerning the condition and progress of the electrification of rural areas in the several States and Territories; and to publish and disseminate information with respect thereto."

The Act provides that the loans shall be self-liquidating. They bear simple interest on the unpaid balance at the average rate paid by the Federal Government on its long-term obligations issued during the fiscal year immediately preceding that during which the loans are made. Those made to finance electric power systems are amortized on the installment plan over a term of 25 years or less. Those made to finance wiring and plumbing installations, and purchase of appliances, run for not more than five years.

A BASIC concept of REA is that electricity on the farm can be a source of income rather than an extra item of expense. To make this possible, certain conditions must be met. Current must be available at a price the farmer can afford to pay; he must use it abundantly in his farm operations; he must receive advice regarding applications adapted to his particular geographical location, climate, soil and acreage. These conditions REA endeavors to fulfill. The rates charged at retail for electricity on REA projects are invariably set as low as seems compatible with the payment of operating expenses and the repayment of the Government's loan.

The rates are arranged on a sliding scale, so that the more current a farmer uses during a given month, the less he pays per kilowatt hour. A small staff of home electrification and farm electrification specialists, coordinating their work as far as possible with that of Extension Service workers and State Agricultural College research staffs, advise project members in adapting electricity to the needs of various regions and of various kinds of farming.

ESTABLISHMENT of REA was the Government's answer to a slackening, amounting almost to stoppage, of extension of electric service to rural areas during the depression. Rural electrification had never moved very fast in the United States. The first experimental efforts were made around 1900. Thirty years later, fewer than 650,000 of the 6,300,000 farms in the Nation were served. Fewer than 50,000 additional farms were connected during the 3 years preceding the creation of REA. The number of electrified farms in the United States was somewhat short of 750,000 when REA was set up. There were several reasons for this slow progress. Rural electrification was largely incidental to suburban development. The same type of heavy construction used in cities was run into the country, so that lines cost from $1,500 to $2,000 a mile. The farm customer was normally required to pay part or all of this in advance, and then to guarantee a high monthly revenue. Rates were generally high, partly owing to the high cost of facilities and partly owing to the need of earning dividends on excessive capitalization.

WHEN REA was set up, it was generally anticipated that the private utilities would be the chief borrowers. For one reason or another, however, they were slow to request loans. It early became apparent that the farmers' cooperative would become the dominant type of borrower. Today 88 percent of REA's 628 borrowers in 44 States are organized along cooperative lines. Another 8 percent are various governmental units—public power and energization districts, State agencies, and numerous municipalities. Only about 4 percent are private utilities.

REA has welcomed the development of power cooperatives, feeling that rural electrification can progress further on a nonprofit basis than on a basis requiring a quick and substantial profit. At the same time the agency has acquired new problems because of the cooperative character of its program. It must exert a guiding influence upon a new cooperative from the moment it is started until it ceases to be a debtor of the Government. This guidance must include approval of engineering specifications, supervision of accounting and of operations, and instruction both in cooperative technique and in the utilization of electricity.

REALIZING the need for less expensive lines, REA's engineers promptly tackled this problem. They are still working on it. They early dropped the cross-arm from single-phase lines and simplified the pole assembly for two- and three-phase lines. They specified longer spans, which the new, high-strength conductors seemed to justify. They brought the average cost of lines below $1,000 at the outset. Today it is under $900. Several Texas projects were built recently at a cost of about $500 a mile. Of course lighter construction was used on these Texas projects than would be necessary where sleet has to be reckoned with. But even tested by sleet and wind in many parts of the country, these low-cost lines have proved stronger than the old-style, high-cost ones. Incidentally, most private utilities are now using the same type of construction on their rural lines.

SINCE the inception of REA, the number of electrified farms in the

United States has more than doubled. The growing demand for rural electrification which its program has aroused has spurred the private utilities to increased rural activity, and has led the more progressive of them to lower their rates and modify their extension policies. REA itself had allotted $238,460,830 as of August 1, 1939. When all the construction that this sum represents has been completed, approximately 240,000 miles of REA-financed lines will be in service. They will make electricity available to well over half a million rural families. Over 100,000 miles of lines have actually been put in service by REA projects, providing electric service to more than a quarter million farm and village homes. A great many more miles of line are under construction.

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# Forecasting the Cotton Crop

MARKED improvement has been made in recent years in the statistical techniques of forecasting and estimating crop production. Cotton is an example. The so-called "par" method of forecasting cotton was abandoned about 1928. A more scientific and flexible method termed "graphic correlation analysis" is now used. The percentage of difference between early season forecasts and final production has been reduced.

For many years no effort was made by the United States Department of Agriculture to forecast the size of the cotton crop in advance of harvest. Condition reports were published during the growing season and a final estimate of the crop was issued toward the end of each year. It was not until 1915 that the Government began to issue forecasts of the crop prior to harvest, although before that time many private agencies were attempting to interpret the condition figures in terms of bales. Since 1915 the Government has continued to publish forecasts of the crop (in bales) regularly during the growing season.

COTTON differs from most crops in that it attempts to "put on" and mature fruit until killed by frost. Fruit in all stages of development may be found on the plant at one time. Unusually early or late frost, lack of moisture, or other weather factors can materially change the size of the crop. Forecasts of production are based upon indications at the time the reports are prepared and upon the assumption that weather conditions after that time will be about average. If the weather is unusually favorable to cotton production after a forecast, the forecast will prove to be too low. If the weather is less favorable to cotton production than average, the forecast will naturally be too high.

When the crop season is over, the cotton statisticians review all the evidence for the season and a report is released by the Crop Reporting Board establishing the final acreage, yield, and production which conform with the final ginnings reports issued by the Bureau of the Census.

THE accuracy of the monthly forecasts of the cotton crop has been improved in recent years, due to a better knowledge of the kind of sample information needed and an improved technique in analyzing the data available. The number of reports relating to acreage and yield on individual farms has been increased and a better distribution obtained.

The crop meter, used extensively during the past 10 years, is a machine that is attached to the dashboard of an automobile and is operated by a special speedometer cable. The operator, driving along selected routes, measures the linear feet of the part of the crops which front the highway.

The same routes are covered each year so that a direct comparison of current year with previous year frontage of corn, cotton, and other crops can be made. Such a comparison is indicative of the percentage change in acreage The crop meter results have been a valuable supplement to the acreage reports received from cotton growers.

After the development of the cotton plant has proceeded to the stage where it is carrying bolls, valuable indications of possible production are secured from counts of the number of large bolls, small bolls, and blooms. These counts are made every 10 miles over established routes. As in the case of crop-meter trips, the cotton inspection trips are made at the same time each year. Data secured are used in a relative way by means of dot charts.

In addition to the boll count work done by the Washington and State statisticians, counts are also made by a large group of farmers, on their own farms. The results of the counts made by farmers are reported to the Department by mail on special forms. These reports are also valuable supplemental information to the condition and yield reports made by cotton farmers.

PRIOR TO 1929 the relationship of reported monthly conditions to the final yield per acre was assumed to have been a simple arithmetical relationship in which the changes in condition were directly proportional to changes in yield. In the earlier period of estimating yields the par method was used in interpreting condition. The basic "pars" were simply projections of the relationship between condition for a specific month and final yield over a series of years with allowance for trends. The par for each month was established at the beginning of the crop season and the accepted condition for the month was multiplied by the appropriate par to secure the indication of probable yield per acre.

The par method was discarded about 1928 because a study of the relationship of reported condition of cotton to final yield per acre revealed that the condition figure itself did not make adequate allowance for extensive damage by boll weevils. In years when weevil damage was heavy the reported condition over-indicated the final yield per acre, and when weevil damage was below average the condition reports under-indicated the yield.

GRAPHIC methods are now used in interpreting condition reports. The condition figures are plotted against final yields in the form of a dot chart with a curve drawn through the observations. When probable weevil damage is being considered as a third factor, this curve is placed so as to express the relationship between condition and final yield with the third factor held constant. The deviations of the individual years from the curve are then plotted against weevil damage to obtain a measure of the allowance to be made for weevil damage. Similar analyses are made of all yield data, such as bolls "safe" per plant, percent stand, date of first grown boll, and reported yield.

ONE OF the important indications of production after October 1 is based upon estimates of the percentage of the crop ginned to specified monthly dates. For a number of years the regular crop correspondents and ginners have been asked to report their judgment of the percentage of the crop ginned to certain dates. These reported percentages, when plotted on charts against the actual percentages ginned as shown by Census reports, make it possible for the Board to estimate very closely the percentage ginned to a given date.

These estimates by the Board of the percentage of the crop ginned are applied to ginnings to date for an indi-

on of final ginnings for the season. a number of years this has been ependable indication of the size he crop. It has the added advan- of being entirely independent of e indications involving the use of , on acreage, condition, and yield acre.

stimates are also obtained from reporters in practically all cotton ities as to the number of bales they nate their county will produce. number of States the production cated by these bale estimates has surprisingly accurate.

HE MONTHLY cotton forecasts naturally tend to approach more ly the final production figures as season progresses and are quite rate in the final months. The fol- ng table shows the average per- age deviation of the monthly esti- mates of production from the final production for the periods 1915–23, 1924–28, and 1929–38:

| Period | August | September | October | November | December | Average Aug.-Dec. |
|---|---|---|---|---|---|---|
| | *Percent* | *Percent* | *Percent* | *Percent* | *Percent* | *Percent* |
| 1915–23 | 9.1 | 6.5 | 6.5 | ------ | 2.3 | 6.1 |
| 1924–28 | 8.7 | 7.8 | 5.9 | 2.8 | 2.4 | 5.5 |
| 1929–38 | 7.0 | 6.7 | 4.8 | 2.4 | 1.1 | 4.4 |

It will be noted that the estimates improved in each period, the August–December average differing from the actual final ginnings by 6.1 percent, 5.5 percent, and 4.4 percent, respectively. In 1938 the average departure of the estimates of production from the final was only 1.2 percent.

F. H. WHITAKER.

## Measures of Domestic Demand

[1924–29=100]

| | June | | | | Percent change | | |
|---|---|---|---|---|---|---|---|
| | *1929* | *1933* | *1938* | *1939* | *1938–39* | *1933–39* | *1929–39* |
| National income | 106.5 | 60.8 | 86.1 | 90.6 | +5 | +49 | −15 |
| Nonagricultural income: | | | | | | | |
| Total | 107.7 | 62.1 | 87.3 | 92.6 | +6 | +49 | −14 |
| Per capita | 102.7 | 57.4 | 77.3 | 81.6 | +6 | +42 | −21 |
| Factory pay rolls: | | | | | | | |
| Total | 109.5 | 47.7 | 68.8 | 83.7 | +22 | +75 | −24 |
| Per employed wage earner | 102.9 | 66.4 | 83.9 | 91.9 | +10 | +38 | −11 |
| Industrial production: | | | | | | | |
| Total | 117.0 | 85.2 | 72.1 | 90.8 | +26 | +7 | −22 |
| Factories processing farm products | 108.6 | 117.2 | 89.3 | 103.1 | +15 | −12 | −5 |
| Other factory production | 123.8 | 70.6 | 60.2 | 83.1 | +38 | +18 | −33 |
| Construction activity: | | | | | | | |
| Contracts awarded, total | 104.1 | 14.9 | 44.6 | 50.4 | +13 | +238 | −52 |
| Contracts awarded, residential | 85.1 | 11.6 | 37.6 | 51.0 | +36 | +340 | −40 |
| Employment in production of building materials | 94.5 | 37.4 | 54.3 | 61.6 | +13 | +65 | −35 |
| Cost of living: | | | | | | | |
| Food | 99.9 | 62.5 | 77.2 | 73.5 | −5 | +18 | −26 |
| "All other items" | 97.8 | 80.3 | 85.8 | 85.8 | (1) | +7 | −12 |
| Purchasing power of nonagricultural income per capita: | | | | | | | |
| For food | 102.8 | 91.8 | 100.1 | 111.0 | +11 | +21 | +8 |
| For "All other items" | 105.0 | 71.5 | 90.1 | 95.1 | +6 | +33 | −9 |

[1] No change.

NOTE.—All indexes adjusted for seasonal variation except "Cost of Living."

# General Trend of Prices and Wages

[1910-14=100]

| Year and month | Wholesale prices of all commodities [1] | Industrial wages [2] | Prices paid by farmers for commodities used in [3]— | | | Farm wages | Taxes [4] |
|---|---|---|---|---|---|---|---|
| | | | Living | Production | Living and production | | |
| 1920 | 225 | 222 | 222 | 174 | 201 | 242 | 244 |
| 1921 | 142 | 203 | 161 | 141 | 152 | 155 | 259 |
| 1922 | 141 | 197 | 156 | 139 | 149 | 151 | 261 |
| 1923 | 147 | 214 | 160 | 141 | 152 | 169 | 266 |
| 1924 | 143 | 218 | 159 | 143 | 152 | 173 | 265 |
| 1925 | 151 | 223 | 164 | 147 | 157 | 176 | 270 |
| 1926 | 146 | 229 | 162 | 146 | 155 | 179 | 271 |
| 1927 | 139 | 231 | 159 | 145 | 153 | 179 | 277 |
| 1928 | 141 | 232 | 160 | 148 | 155 | 179 | 279 |
| 1929 | 139 | 236 | 158 | 147 | 153 | 180 | 281 |
| 1930 | 126 | 227 | 148 | 140 | 145 | 167 | 277 |
| 1931 | 107 | 208 | 126 | 122 | 124 | 130 | 253 |
| 1932 | 95 | 179 | 108 | 107 | 107 | 96 | 219 |
| 1933 | 96 | 172 | 109 | 108 | 109 | 85 | 187 |
| 1934 | 109 | 183 | 122 | 125 | 123 | 95 | 178 |
| 1935 | 117 | 192 | 124 | 126 | 125 | 103 | 180 |
| 1936 | 118 | 200 | 122 | 126 | 124 | 111 | 182 |
| 1937 | 126 | 215 | 128 | 135 | 130 | 126 | 187 |
| 1938 | 115 | 207 | 122 | 124 | 122 | 124 | ---------- |
| July | 115 | 205 | ---------- | ---------- | 123 | 129 | ---------- |
| August | 114 | 209 | ---------- | ---------- | 122 | ---------- | ---------- |
| September | 114 | 214 | 121 | 122 | 121 | ---------- | ---------- |
| October | 113 | 212 | ---------- | ---------- | 121 | 126 | ---------- |
| November | 113 | 207 | ---------- | ---------- | 121 | ---------- | ---------- |
| December | 112 | 212 | 120 | 122 | 120 | ---------- | ---------- |
| 1939—January | 112 | 211 | ---------- | ---------- | 120 | 117 | ---------- |
| February | 112 | 213 | ---------- | ---------- | 120 | ---------- | ---------- |
| March | 112 | 218 | 119 | 122 | 120 | ---------- | ---------- |
| April | 111 | 211 | ---------- | ---------- | 120 | 121 | ---------- |
| May | 111 | 210 | ---------- | ---------- | [5] 120 | ---------- | ---------- |
| June | 110 | ---------- | ---------- | 122 | [5] 121 | ---------- | ---------- |
| July | [5] 110 | ---------- | ---------- | ---------- | [5] 120 | 126 | ---------- |

| Year and month | Index of prices received by farmers [August 1909–July 1914=100] | | | | | | | | Ratio of prices received to prices paid |
|---|---|---|---|---|---|---|---|---|---|
| | Grains | Cotton and cottonseed | Fruits | Truck crops | Meat animals | Dairy products | Chickens and eggs | All groups | |
| 1920 | 232 | 248 | 191 | -------- | 174 | 198 | 223 | 211 | 105 |
| 1921 | 112 | 101 | 157 | -------- | 109 | 156 | 162 | 125 | 82 |
| 1922 | 106 | 156 | 174 | -------- | 114 | 143 | 141 | 132 | 89 |
| 1923 | 113 | 216 | 137 | -------- | 107 | 159 | 146 | 142 | 93 |
| 1924 | 129 | 212 | 125 | 150 | 110 | 149 | 149 | 143 | 94 |
| 1925 | 157 | 177 | 172 | 153 | 140 | 153 | 163 | 156 | 99 |
| 1926 | 131 | 122 | 138 | 143 | 147 | 152 | 159 | 145 | 94 |
| 1927 | 128 | 128 | 144 | 121 | 140 | 155 | 144 | 139 | 91 |
| 1928 | 130 | 152 | 176 | 159 | 151 | 158 | 153 | 149 | 96 |
| 1929 | 120 | 144 | 141 | 149 | 156 | 157 | 162 | 146 | 95 |
| 1930 | 100 | 102 | 162 | 140 | 133 | 137 | 129 | 126 | 87 |
| 1931 | 63 | 63 | 98 | 117 | 92 | 108 | 100 | 87 | 70 |
| 1932 | 44 | 47 | 82 | 102 | 63 | 83 | 82 | 65 | 61 |
| 1933 | 62 | 64 | 74 | 105 | 60 | 82 | 75 | 70 | 64 |
| 1934 | 93 | 99 | 100 | 103 | 68 | 95 | 89 | 90 | 73 |
| 1935 | 103 | 101 | 91 | 125 | 118 | 108 | 117 | 108 | 86 |
| 1936 | 108 | 100 | 100 | 111 | 121 | 119 | 115 | 114 | 92 |
| 1937 | 126 | 95 | 122 | 123 | 132 | 124 | 111 | 121 | 93 |
| 1938 | 74 | 70 | 73 | 101 | 114 | 109 | 108 | 95 | 78 |
| July | 72 | 71 | 79 | 99 | 123 | 101 | 103 | 95 | 77 |
| August | 62 | 69 | 78 | 92 | 115 | 102 | 105 | 92 | 75 |
| September | 63 | 69 | 75 | 107 | 117 | 104 | 118 | 95 | 79 |
| October | 60 | 72 | 70 | 107 | 111 | 107 | 124 | 95 | 79 |
| November | 60 | 73 | 71 | 102 | 111 | 109 | 131 | 94 | 78 |
| December | 63 | 70 | 73 | 108 | 109 | 112 | 127 | 96 | 80 |
| 1939—January | 66 | 71 | 76 | 96 | 112 | 109 | 97 | 94 | 78 |
| February | 66 | 70 | 78 | 108 | 116 | 107 | 91 | 92 | 77 |
| March | 66 | 71 | 81 | 114 | 116 | 100 | 88 | 91 | 76 |
| April | 67 | 70 | 82 | 102 | 114 | 95 | 87 | 89 | [5] 74 |
| May | 72 | 72 | 85 | 110 | 112 | 92 | 85 | 90 | [5] 75 |
| June | 73 | 73 | 93 | 105 | 107 | 94 | 83 | 89 | [5] 74 |
| July | -------- | -------- | -------- | -------- | -------- | -------- | -------- | -------- | -------- |

[1] Bureau of Labor Statistics Index with 1926=100, divided by its 1910-14 average of 68.5.
[2] Average weekly earnings, New York State factories. June 1914=100.
[3] These indexes are based on retail prices paid by farmers for commodities used in living and production reported quarterly for March, June, September, and December. The indexes for other months are interpolations between the successive quarterly indexes.
[4] Index of farm real estate taxes, per acre, 1909-13=100.
[5] Preliminary.



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